

Remarks

This paper is responsive to the Office Action mailed October 8, 2003 in connection with the above-identified patent application. Reconsideration of claims 1-29 is respectfully requested.

The Office Action

Claims 1-13 and 17-29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (U.S. patent No. 4,145,612) in view of Edwards (U.S. Patent No. 5,628,853).

Claims 14 and 21-29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (U.S. Patent No. 4,145,612) in view of Edwards (U.S. Patent No. 5,628,853) and further in view of Peterson (U.S. Patent No. 4,828,208).

Claim 15 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (U.S. Patent No. 4,145,612) in view of Edwards (U.S. Patent No. 5,628,853) and further in view of Lussi (U.S. Patent No. 5,754,997).

Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (U.S. patent No. 4,145,612) in view of Edwards (U.S. Patent No. 5,628,853) and further in view of Pegrum (U.S. Patent No. 3,627,250).

Claims 1-7, 13, and 17-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (U.S. Patent No. 4,145,612) in view of Beane (U.S. Patent No. 5,099,550).

Claims 21 and 29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper in view of Beane and further in view of Peterson.

The Present Application

For purposes of review, the present application is directed to a low shadow accessory interface profile

provided on a radiolucent surgical table. The interface profile includes a plurality of interconnected curved surfaces formed along the outer edge of a patient support member portion of the surgical table for selective attachment to a range of medical accessory devices. The preferred embodiment of the support interface includes a non-planar first connection area formed by the patient support member and having a recess and a curved lip area adapted to engage correspondingly formed surfaces on a medical accessory connector. A second connection area of the preferred support interface includes a planar locating surface formed by the patient support member at an angle oblique relative to the top surface of the patient support member. Engagement with the locating surface by corresponding surfaces formed on the medical accessory connectors generate a downward force that causes an increase in the engagement forces at the first connection area, namely between the recess and the lip areas of the interface and corresponding surfaces on the accessory connectors.

One significant advantage of the accessory interface of the present application is that it provides a substantially uniform attenuation characteristic to x-ray signals in both the lateral and transverse directions and with the table held flat or tilted relative to the x-ray signal source. Preferably, the accessory interface profile presents a substantially uniform attenuation characteristic to x-rays passing through the table top and table top edges regardless of the angle of the table top relative to the x-ray source. In that way, the radiographic images of a patient disposed on such surgical table are free and clear of extraneous shadows.

Another advantage of the interface of the present application is that, in addition to being substantially x-ray shadow free, an accessory interface is provided so that a wide range of surgical accessories can be easily and directly connected anywhere along the edge of the table top.

The Applied References

U.S. Patent No. 4,145,612 to Cooper discloses a base 11 having an elongated patient support stretcher 12. (Col. 3, lines 1-2). The stretcher has a trapezoidal cross section with sharp edges. No specifically designed interface accessory structure is provided.

The Cooper '612 patent is directed to a construction of a durable patient stretcher. The significance of a low attenuation characteristic of the patient support stretcher is not critical and, accordingly, is not discussed or described. (Col. 2, lines 29-30).

U.S. Patent No. 5,628,853 to Edwards relates to foil laminated table tops and to methods for their manufacture. The table top shown in Figure 1 of the '853 patent includes a spill groove 12 formed below the upper plane in which the upper surface 2 of the table top lies. The spill groove extends along the circumference of the table top. Liquid spilled on the upper surface 2 of the table top may run into groove 12 from which it may easily be wiped up with a towel or the like. Without a spill groove 12, spilled liquid could more readily spill over sides 3 of the table top.

U.S. Patent No. 5,099,550 to Beane, et al. teaches a resilient clamp for attaching a heat sink to a semiconductor package. As shown in Figures 1 and 2, a pin-fin

heat sink 5 includes two pairs of parallel side walls 18 and 19. Each edge of the front face 14 adjacent to the two parallel side walls 18 terminates at an inner edge of a rounded groove 16. The outer edge of each heat sink groove 16 is rounded to form a shoulder 17. The heat sink 5 is fastened in place by one or more resilient "C" clamps 50. For attachment, a notch 56 is fitted over the edge of the semiconductor 60. The clamp 50 is then stretched open, flexing primarily at the upper portion 62 and eased over the rounded shoulder 17 of the pin-fin heat sink 5. The knob 54 is then allowed to spring in place in groove 16 on the front face of the heat sink. Because the radius of curvature of the end of knob 54 is the same size as or slightly smaller than the radius of the curvature of the bottom groove 16, the knob and groove fit together as would a ball and socket.

Claims 1-5 are in Condition for Allowance:

Independent **Claim 1** recites a medical appliance support interface in a radiolucent patient support table including planar top and bottom surfaces held apart in an opposed relationship. The support interface is useful for selectively connecting an associated medical appliance to the table. The interface comprises a non-planar first connection area defined by the top surface of the support table, and a second connection area defined by the table. The first connection area is shaped to provide a first supporting force against an associated medical appliance in a first direction substantially parallel to the top and bottom surfaces of the support table, and a second supporting force against the associated medical appliance in a second direction substantially perpendicular to the top and bottom surfaces. The second connection area provides a

third supporting force against the associated medical appliance in a third direction substantially parallel to the top and bottom surfaces of the support table, and a fourth supporting force against the associated medical appliance in a fourth direction substantially perpendicular to the top and bottom surfaces.

Independent **claim 1** stands rejected as being unpatentable over the teachings of the Cooper '612 patent in view of the Edwards '853 patent. The Examiner took the position that the patient support stretcher of the Cooper patent shows a medical appliance support interface for selectively connecting an associated medical appliance to the table including first connection area defined on the top surface of a surgical table, the first connection area being shaped to provide a first supporting force against an associated medical appliance in a first direction substantially parallel to the top and bottom surfaces, and a second supporting force against the associated medical appliance in a second direction substantially perpendicular to the top and bottom surfaces.

It is unclear to applicants where the Examiner finds in the table top of the Cooper patent a medical appliance support interface or a connection area defined on the top surface of the table and shaped to provide a supporting force against an associated medical appliance in a first direction substantially parallel to the top and bottom surfaces of the table. The Cooper patent has no discussion of a support interface or of associated medical appliances of any sort. Further, the table top taught in the Cooper patent has a substantially trapezoidal cross-section shape and, as such, the table top is completely flat. Applicants can see no connection area defined on the

top surface of the support table which would provide any forces whatsoever against an associated medical appliance in directions substantially parallel to the top and bottom surfaces of the table.

The limitation of a connection area defined by the top surface of the support table is clearly recited as a limitation in independent claim 1 as amended above. The first connection area provides a supporting force against an associated medical appliance in a first direction substantially parallel to the top and bottom surfaces of the table. This limitation is also clearly recited in independent claim 1. Applicants can find no corresponding structure or functionality in the table top taught in the Cooper patent.

In order to remedy the deficiency of the trapezoidally shaped table top configuration taught in the Cooper patent, the Examiner cited the Edwards '853 patent for its teachings of a spill groove 12 formed in the top surface of an ornamental table.

Applicants respectfully submit that the Edwards '853 patent is non-analogous art and, therefore, not combinable with the Cooper '612 patent. As indicated in the M.P.E.P. at Section 904.01(c) the determination of what arts are analogous to a particular claimed invention depends upon the necessary essential function or utility of the subject matter covered by the claims. For example, a tea mixer and a concrete mixer may both be regarded as relating to the mixing art, this being the necessary function of each. Similarly, a brick-cutting machine and a biscuit-cutting machine may be considered as having the same necessary function. In the case at hand, the groove formed on the outer periphery of the circular ornamental table taught in

the Edwards '853 patent is simply a "spill groove" as noted in that patent at column 8 provided to channel spilled liquids so that they may be wiped up with a towel or the like, thereby "retaining" the liquid on the table.

According to the M.P.E.P. at Section 2141.01(a), in order to rely upon a reference under 35 U.S.C. § 103, it must be analogous prior art. The Examiner must determine what is "analogous prior art" for the purpose of analyzing the obviousness of the subject matter at issue. In order to rely on a reference as a basis for rejection of an applicants' invention, the reference must either be in the field of applicants' endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.

In the case at hand, it is respectfully submitted that the ornamental table taught in the Edwards '853 patent is not in applicants' field of endeavor, i.e. surgical tables.

The next step in the determination is whether the reference is reasonably pertinent to the particular problem with which the inventors were concerned. The M.P.E.P. indicates that a reference is reasonably pertinent if, even though it may be in a different field from that of inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem. It is respectfully submitted that persons in applicants' field of endeavor who are interested in providing a accessory interface profile in a low shadow radiographical table, would not be compelled or commended to consider spill grooves in an ornamental outdoor table top. If the subject matter claimed in the instant application were a spill

groove provided in a surgical table top for purposes of communicating bodily fluids or the like away from patients disposed upon the table top, then the teachings of the Edwards '853 patent might be reasonably pertinent to the particular problem which the inventors were concerned. However, clearly, this is not the case. Rather, as clearly outlined in the specification and set out in the pending claims in this application, an accessory interface is provided on a surgical table top for purposes of attaching associated medical accessory devices to the table top without interfering with radiographical images obtained using the table top.

Turning now to U.S. Patent No. 5,099,550 to Beane, et al., again, applicants respectfully submit that the patent is non-analogous art and is therefore not combinable with the Cooper '612 patent. According to the test set out in the M.P.E.P. as noted above, the reference must either be in the field of applicants' endeavor or, if not, then be reasonably pertinent to the particular problem which the inventors were concerned. Clearly, the Beane, et al. '550 patent is not in applicants' field of endeavor. Rather, it is directed to the heat sink art.

In the second step of the test set out in the M.P.E.P., a reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem.

Again, as set out in the specification in detail, applicants are interested in providing an interface for attachment of associated medical appliances to a surgical table without adversely affecting radiographic images

obtained thereon. The Beane, et al. '550 patent, however, deals with the problem of holding a heat sink in place atop of a heat producing semiconductor device-joining a pair of articles using a third article. A "C" clamp connects on one end to the underside of the heat producing device and on the other end in a groove formed in the heat sink. The teaching of the use of a clamp for attaching a heat sink to a heat producing device would not logically have commended itself to the attention of the inventors in the present application for solving the problem of providing a low shadow interface on a surgical table. Accordingly, applicants respectfully submit that the Beane, et al. '550 patent is non-analogous art and, therefore, not combinable with the Cooper '612 patent.

Applicants respectfully submit that the Examiner's combination of the Edwards '853 spill groove 16 onto the trapezoidal table of Cooper is an improper hindsight combination. Even if those teachings were combined, however, they would not result in the advantageous benefits provided by the subject medical appliance support interface of a substantially shadow-free image realized because the first and second connection areas are defined by the table.

In addition to the above, independent **claim 1** an amended clearly recites the limitation that the first and second connection areas are defined by the table.

For at least the above reasons, it is respectfully submitted that independent claim 1 and claims 2-5 dependent therefrom are patentably distinct and unobvious over the art of record.

Claims 17-20 are in Condition for Allowance:

Independent **claim 17** recites a medical appliance support interface in a radiolucent patient support table for selectively connecting an associated medical appliance to the table. The interface comprises a curved first connection area defined by the top surface of the support table and a second connection area defined by the table and shaped to provide supporting force against the associated medical appliance.

Again, it is respectfully submitted that none of the art cited by the Examiner provides connection areas defined by a patient support table. This results in a substantially shadow free radiographic image at the table edge. The Examiner has only cited art which, when combined, would lead line traces in radiographic images developed.

For at least the above reasons, including the discussion above relating to claims 1-5, it is respectfully submitted that independent claim 17 and claims 18-20 dependent therefrom are patentably distinct and unobvious over the art of record.

Claims 21-29 are in Condition for Allowance:

Independent **claim 29** is directed to a medical appliance interface comprising a table top, a groove defined by an upper surface of the table top, a ridge defined by a lower surface of the table top, and a substantially flat side surface extending between the upper edge of the table top and the lower edge of the table top.

Again, none of the art cited by the Examiner teaches or suggests grooves, ridges, or other features

defined by the table top which would provide a medical appliance interface.

For at least the above reasons, including the discussion above relating to claims 1-5, it is respectfully submitted that independent claim 21 and claims 22-29 dependent therefrom are patentably distinct and unobvious over the art of record.

Claims 6-16 are in Condition for Allowance:

Independent **claim 6** recites a surgical table comprising a base member, a column connected with the base member, a rectangular radiolucent patient support member carried on the column, and a low radiographic shadow accessory connection interface defined by a plurality of curved surfaces of the patient support member along at least one edge of the patient support member for selectively connecting an associated accessory to the patient support member.

It is respectfully submitted that none of the art cited by the Examiner teaches, suggests, or describes an accessory connection interface defined by a plurality of curved surfaces of a patient support member for selectively connecting an associated accessory to the patient support member.

In view of the above amendments and comments provided, including the discussion above relating to claims 1-5, it is respectfully submitted that independent claim 6 and claims 7-16 are patentably distinct and unobvious over the art of record.

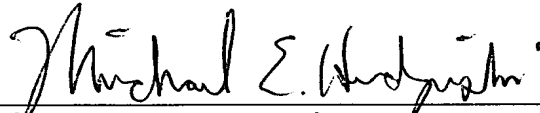
CONCLUSION

In view of the above amendments, comments, and arguments presented, it is respectfully submitted that all pending claims are patentably distinct and unobvious over the references of record.

Allowance of all claims and early notice to that effect is respectfully requested.

Respectfully submitted,

FAY, SHARPE, FAGAN,
MINNICH & McKEE, LLP



Thomas E. Kocovsky, Jr.
Reg. No. 28,383
Michael E. Hudzinski
Reg. No. 34,185
1100 Superior Avenue,
Seventh Floor
Cleveland, Ohio 44114-2518
216-861-5582